No. 8700034

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Nickerson American Plant Breeders, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS Y THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Trailblazer'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 31st *day of* August *in the year of our Lord one thousand nine hundred and* eighty-eight.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMS NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME
Nickerson American Plant Breeders Inc.	HW81-170	Trailblazer

4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code)	5. PHONE (Include area code)	FOR OFFICIAL USE ONLY
5201 Johnson Drive Mission, Kansas 66205	(913) 384-4940 KS (303) 532-3721 CO	PVPO NUMBER 8700034

6. GENUS AND SPECIES NAME	7. FAMILY NAME (Botanical)	FILING DATE / TIME
Triticum aestivum	Gramineae	December 29, 1986 10:00 ☒ A.M. ☐ P.M.

8. KIND NAME	9. DATE OF DETERMINATION	FEES RECEIVED
Hard Red Winter Wheat	1=1981 2=1984	AMOUNT FOR FILING $ 1800 00 DATE December 29 1986 AMOUNT FOR CERTIFICATE $ 200 00 DATE July 26, 1988

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.)

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION	12. DATE OF INCORPORATION
Delaware	January 19, 1983

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

R.E. Heiner
5201 Johnson Drive
Mission, KS 66205
(913) 384-4940

OR

R.F. Bruns or C. Bruns
P.O. Box 30
Berthoud, CO 80513

PHONE (Include area code): (303) 532-3721

14 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership. Exhibit F. Quality and Statistical Data

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☒ Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ Yes ☐ No	☒ Foundation ☒ Registered ☒ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES ?

☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT	DATE
Robert Bruns.	12-18-86
SIGNATURE OF APPLICANT	DATE
RE Heiner	12-22-86

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF TRAILBLAZER

PARENTAGE: OK11252A/HW76-1226

DATE OF CROSS: 1976

BREEDING HISTORY:

Trailblazer was derived as a single F3 plant selection and advanced as an F4 plant row. F5 seed was harvested at Berthoud and subjected to preliminary milling and baking quality tests. The remaining seed was evaluated in preliminary yield trials (YI) under the line designation AgriPro W81-170, at Berthoud, CO, Colby, KS, and Witchita, KS during the 1980-1981 season. W81-170 was tested in replicated yield trials at numerous locations in the Hard Red Winter Wheat Region of the Great Plains from 1982-1986. W81-170 was tested in the Southern Regional Performance Nursery (SRPN) during 1985 and 1986, and official state and private trials in Texas, Oklahoma, Kansas, Colorado, Nebraska, Missouri, New Mexico, South Dakota, Idaho, Washington, Iowa, and Illinois in 1985 and 1986.

There were 100 head-rows grown in Berthoud, CO in 1983 and 80 were selected to produce breeders seed. Approximately 5,930 pounds of breeder seed was produced in 1984, and an additional 4,250 pounds was produced in 1985.

Trailblazer is uniform and stable. Less than 1% of the plants were rogued from the foundation fields in 1986. Approximately 90% of the rogued variant plants were 10 to 15 centimeters taller than Trailblazer. Less than .5% of these total variant plants may be encountered in subsequent generations.

EXHIBIT B

NOVELTY STATEMENT

Trailblazer is most similar to the hard red winter wheat Wings, however it can be easily distinguished by the following morphological characteristics:

- Trailblazer and Wings both have acuminate type beaks but they vary significantly, (see statistical data following page).
- Trailblazer has an oblique shoulder. Wings is patented as having a round shoulder.
- Trailblazer has a midlong type brush on the seed. Wings has a short brush on its seed.
- Trailblazer has a narrow seed crease width. Wings is patented as having a wide seed crease width.
- Trailblazer has a twisted flag leaf. Wings is patented as having a non-twisting flag leaf.

8700034

Anova Table for Beak Length
Trailblazer VS. Wings

SOURCE	df	ss	ms
Total	49	25.238	
VAR	1	3.124	3.124
Error	48	22.114	.461

F Test=6.78*

VAR	MEAN
Trailblazer	3.69mm's
Wings	3.19mm's

*The probability that the mean beak length is significantly different at the 5% alpha level.

'Trailblazer'

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Nickerson American Plant Breeders Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
5201 Johnson Drive
Mission, Kansas 66205

FOR OFFICIAL USE ONLY
PVPO NUMBER 8700034
VARIETY NAME OR TEMPORARY DESIGNATION

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:
[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____ [2] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____

[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM [redacted] TO: January 1st/
[2][3][4] FIRST FLOWERING [2][4][0] LAST FLOWERING

4. MATURITY (*50% Flowering*): EQUAL TO SCOUT
[---] NO. OF DAYS *EARLIER* THAN ..... [2] 1 = ARTHUR 2 = SCOUT 3 = CHRIS
[---] NO. OF DAYS *LATER* THAN ..... [---] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (*From soil level to top of head*):
[0][9][0] CM. HIGH
[---] CM. TALLER THAN ..... [---]
[1][5] CM. SHORTER THAN ..... [2] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (*See reverse*):
[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom: 1 = ABSENT 2 = PRESENT
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[0][4] NO. OF NODES (*Originating from node above ground*)
[2][0] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[2] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:
[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____
[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[1][3] MM. LEAF WIDTH (*First leaf below flag leaf*)
[2][7] CM. LEAF LENGTH (*First leaf below flag leaf*):

FORM GR-470-6 (REVERSE) 'Trailblazer' 8700034

11. HEAD:

[3] Density: 1 = LAX 2 = DENSE 3=Middense

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[9][.7] CM. LENGTH

[1][1] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[1] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[2] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE ave. 3.69 mms

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[2] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1-3] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL ovate to elliptical

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[---] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[6.][4] MM. LENGTH

[3.][3] MM. WIDTH

[3][6] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[4] STEM RUST (Races) field

[4] LEAF RUST (Races) field

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[1] POWDERY MILDEW

[0] BUNT

[2] OTHER (Specify) soil borne mosiac virus

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[0] SAWFLY

[0] APHID (Bydv.)

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[0] OTHER (Specify) _____

HESSIAN FLY RACES: [1] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Wings	Seed size	Wings
Leaf size	Wings	Seed shape	Wings
Leaf color	Wings	Coleoptile elongation	Wings
Leaf carriage	Wings	Seedling pigmentation	Wings

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form.

(a) L.T. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook on seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

EXHIBIT D

ADDITIONAL DESCRIPTION OF TRAILBLAZER

Trailblazer is a hard red winter wheat tested as HW81-170. It was bred and developed by Nickerson American Plant Breeders Inc.

Trailblazer is an intermediate height semidwarf variety with intermediate maturity, good winterhardiness and a broad spectrum of pathological protection factors. Milling and baking properties are very good.

Juvenile plant growth habit is semi-erect. Plant color is green at boot with an erect, twisted flag leaf. Auricles have hair and do express anthocyanin. Waxey bloom is present on stem and flag leaf sheath. Head shape is tapering, middense, awned and white at maturity. Glumes are long, and narrow in width with oblique shoulders and acuminate beak. Seed shape is ovate to elliptical with rounded cheeks and midlong brush hairs.

Trailblazer is primarily adapted to central, eastern and northern Kansas, western Missouri and the state of Nebraska.

EXHIBIT E

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Nickerson American Plant Breeders Inc. is the applicant for protection in this case being:

a) The incorporated business (registered in Delaware) for and within which regular employees have bred the named variety.

b) The proprietory owner and intending commercial user of the variety.

8700034

EXHIBIT F

QUALITY AND AGRONOMIC/PATHOLOGICAL DATA

AGRIPRO SEEDS

HARD RED WINTER WHEAT QUALITY

YEAR	SAMPLE NAME	LOC	WHEAT--FLOUR QUALITY: TEST WT.	WHT PROT	FLR YLD	FLR PROT	FLR ASH	MIX CURVE	BAKING QUALITY: ABS.	MIX TIME	DOUGH CHAR	LOAF VOL	CRUMB: GRN	TEX	COL	MILL SCORE	BAKE SCORE	TOTAL SCORE
	'Trailblazer'		lb/Bu	14%mb	%	14%mb	14%mb	R	%	min	R	cc	R	R	R			
81	HW81-170	BR	61.7	11.8	73.2	11.0	0.435	4	63.0	2.3	8	885	7	8	9	74-C	79-C	153-C
82	HW81-170	LK	59.5	14.3	71.3	12.9	0.000	8	66.0	3.0	8	900	9	9	9	91-A	90-A	181-A
82	HW81-170	ED	55.8	13.8	68.1	13.2	0.000	7	65.0	3.5	9	950	8	9	9	77-C	93-A	170-B
82	HW81-170	GI	55.8	13.7	67.8	12.7	0.000	8	65.0	2.5	8	975	8	9	9	79-C	89-B	167-B
82	HW81-170	CK	55.7	13.7	66.7	12.4	0.000	8	64.0	2.8	8	950	8	9	9	74-C	89-B	163-B
83	HW81-170	LK	58.4	14.4	69.4	13.5	0.424	7	62.0	3.0	8	1000	8	8	9	83-B	87-B	170-B
83	HW81-170	SK	61.4	12.8	67.5	11.2	0.427	6	60.0	3.5	8	885	8	8	9	74-C	80-B	154-C
83	HW81-170	SN	58.9	14.6	65.7	12.9	0.426	6	63.0	2.8	8	960	9	8	9	74-C	87-B	161-B
84	HW81-170	SD	56.9	13.5	70.4	11.8	0.401	9	66.0	2.8	8	960	8	9	9	84-B	87-B	171-B
84	HW81-170	GI	59.9	15.5	72.0	12.5	0.454	7	64.0	3.3	8	950	7	8	8	90-A	87-B	177-B
84	HW81-170	BB	62.0	12.5	69.8	11.3	0.000	6	64.0	2.8	8	990	8	8	8	77-C	86-B	163-B
85	HW81-170	TI	60.9	12.4	66.7	11.6	0.466	7	65.0	2.3	8	825	7	7	7	75-C	75-C	150-C
85	HW81-170	TI	62.5	11.4	65.1	9.8	0.461	6	63.0	2.3	7	820	7	8	8	60-D	75-C	135-D
85	HW81-170	SK	56.2	13.0	66.3	11.0	0.452	7	64.0	3.0	7	950	8	8	9	66-D	88-B	154-C
85	HW81-170	BB	56.5	14.3	65.4	13.2	0.394	7	65.0	2.3	7	960	7	8	8	73-C	82-B	155-C
85	HW81-170	BB	56.8	15.2	67.3	14.4	0.407	7	68.0	1.8	7	950	6	7	8	77-C	76-C	153-C
85	HW81-170	GK	58.8	12.2	67.6	10.2	0.000	6	62.0	2.5	7	900	8	8	8	65-D	80-B	145-C
85	HW81-170	GK	54.9	14.8	65.3	13.6	0.435	8	65.0	2.3	7	910	7	8	8	73-C	80-B	153-C
85	HW81-170	GK	57.3	13.5	66.8	11.8	0.418	7	66.0	2.8	7	960	7	7	7	73-C	78-C	151-C
86	W81-170	GI	60.6	12.1	65.1	10.8	0.359	7	65.0	2.5	8	850	7	8	8	70-C	81-B	151-C
86	W81-170	ND	57.7	12.6	60.0	10.6	0.387	8	66.0	3.3	8	1000+	8	8	8	69-D	90-A	159-C
	AVERAGE		58.5	13.4	67.5	12.0	0.424	7	64.3	2.7	8	928	8	8	8	78-C	84-B	162-B

GRADES: A-EXCELLENT B-GOOD C-ACCEPTABLE D-QUESTIONABLE F-UNACCEPTABLE

R=RATINGS: 9-10=EXCELLENT 8=GOOD 7=ACCEPTABLE 5-6=QUESTIONABLE 1-4=UNACCEPTABLE

10

8700034

RELATIVE RANKINGS OF TRAILBLAZER AND 19 OTHER HRWW VARIETIES
FOR VARIOUS AGRONOMIC AND PATHOLOGICAL TRAITS

	TEST WT.	SHATTERING POTENTIAL	MATURITY	HEIGHT	COLEOPTILE EXPRESSION	STRAW STRENGTH	WINTERKILL	STEM RUST	LEAF RUST	SOILBORNE MOSAIC VIRUS	SPINDLE STREAK MOSAIC VIRUS	SEPTORIA TRITICI	TAN SPOT	POWDERY MILDEW	HESSIAN FLY
TRAILBLAZER	4	5	5	4	4	5	5	4	3	3	4	3	2	8	8
STALLION	4	6	4	3	5	1	6	7	6	3	6	3	6	6	4
VICTORY	6	6	3	4	3	4	4	5	3	2	1	4	4	5	8
THUNDERBIRD	4	6	5	5	1	3	3	2	2	1	6	3	7	6	4
MUSTANG	4	3	3	3	6	4	6	5	8	3	6	7	4	7	6
WRANGLER	3	3	3	3	6	3	5	4	7	3	7	7	7	7	6
HAWK	6	3	6	4	5	5	5	4	8	3	2	6	4	4	8
WINGS	2	5	4	4	7	6	5	5	7	8	5	4	5	4	4
NEWTON	5	4	4	4	6	5	7	5	8	2	4	6	7	5	8
TAM 105	6	3	4	4	5	3	3	8	8	6	9	4	5	5	8
VONA	6	4	4	3	8	3	7	6	7	8	9	5	5	4	4
ARKAN	5	7	3	4	2	4	4	1	4	2	4	3	5	2	2
TAM 107	6	4	2	3	4	3	3	5	8	6	5	5	6	1	8
RAM	8	3	6	5	5	6	6	4	7	2	2	6	4	3	6
ROCKY	4	6	6	7	3	7	4	4	7	2	2	5	5	4	8
BRULE	6	8	5	5	6	6	2	5	7	6	5	5	7	8	2
SIOUXLAND	4	6	5	6	5	5	3	2	2	8	7	3	4	2	7
CHISHOLM	2	4	2	4	5	4	7	8	7	8	9	5	7	8	5
CENTURY II	5	6	5	5	6	3	6	6	3	8	6	3	3	1	8
NORKAN	5	7	3	4	3	4	4	3	4	2	6	3	5	2	2
MEAN	4.8	6.1	5.0	5.1	5.7	4.2	6.0	6.0	5.7	6.9	5.3	4.5	5.9	4.6	6.8
LSD 0.05	1.0	1.9	2.1	1.8	2.4	1.0	2.2	2.2	1.0	3.1	1.6	0.9	2.3	1.5	2.2

The rankings in the table above are based on a scale of 1-9, where 1 and 9 represent the following extremes for the repective traits.

	1	9
Test Weight	high	low
Shattering Potential	low	high
Maturity	early	late
Colenptile Expression	short	long
Straw strength	strong	weak
Winterkill	hardy	tender
All disease & insect ratings	resistant	susceptible

11

8700034

HARD RED WINTER WHEAT TRIAL SUMMARIES
OVER LOCATIONS-OVER YEARS
DECEMBER 11, 1986

VARIETY OR LINE: TRAILBLAZER VERSUS ARKAN

STATE	YIELD OVER YEARS BU/A TBZR	BU/A ARKN	NO. LOC.	1982 YIELD BU/A TBZR	BU/A ARKN	NO. LOC.	1983 YIELD BU/A TBZR	BU/A ARKN	NO. LOC.	1984 YIELD BU/A TBZR	BU/A ARKN	NO. LOC.	1985 YIELD BU/A TBZR	BU/A ARKN	NO. LOC.	1986 YIELD BU/A TBZR	BU/A ARKN	NO. LOC.
KS	56.4	56.3	23	-	-	-	51.7	59.2	3	59.4	56.5	5	51.9	51.3	9	63.2	62.3	6
OK	46.4	48.4	8	33.2	32.9	1	-	-	-	67.8	68.3	2	43.2	44.8	3	36.7	41.8	2
TX	81.6	77.6	3	-	-	-	-	-	-	-	-	-	98.1	91.1	2	48.8	50.7	1
NE	52.5	50.7	12	-	-	-	56.2	45.2	3	-	-	-	53.4	54.4	4	49.6	51.1	5
CO	100.9	103.2	7	-	-	-	103.5	112.7	1	96.6	90.1	1	126.1	126.6	3	64.3	70.2	2

YIELD OVER LOCATION/YEARS
61.3 61.2 53

TEST WT. OVER LOCATION/YEARS
58.4 58.1 53

VARIETY OR LINE: TRAILBLAZER VERSUS BRULE

STATE	YIELD OVER YEARS BU/A TBZR	BU/A BRL	NO. LOC.	1982 YIELD BU/A TBZR	BU/A BRL	NO. LOC.	1983 YIELD BU/A TBZR	BU/A BRL	NO. LOC.	1984 YIELD BU/A TBZR	BU/A BRL	NO. LOC.	1985 YIELD BU/A TBZR	BU/A BRL	NO. LOC.	1986 YIELD BU/A TBZR	BU/A BRL	NO. LOC.
KS	55.6	55.1	10	-	-	-	51.7	57.0	3	34.4	33.7	1	38.8	34.8	1	65.7	62.5	5
OK	37.0	30.2	4	-	-	-	-	-	-	-	-	-	48.4	38.6	1	33.3	27.4	3
TX	48.8	43.6	1	-	-	-	-	-	-	-	-	-	-	-	-	48.8	43.6	1
NE	49.9	48.9	11	-	-	-	56.2	49.4	3	-	-	-	52.0	50.3	2	46.2	48.3	6
CO	78.4	83.2	5	-	-	-	69.0	74.6	2	-	-	-	125.8	120.8	1	64.3	73.1	2

YIELD OVER LOCATION/YEARS
54.7 53.9 31

TEST WT. OVER LOCATION/YEARS
57.8 55.9 31

VARIETY OR LINE: TRAILBLAZER VERSUS NEWTON

STATE	YIELD OVER YEARS BU/A TBZR	BU/A NWT	NO. LOC.	1982 YIELD BU/A TBZR	BU/A NWT	NO. LOC.	1983 YIELD BU/A TBZR	BU/A NWT	NO. LOC.	1984 YIELD BU/A TBZR	BU/A NWT	NO. LOC.	1985 YIELD BU/A TBZR	BU/A NWT	NO. LOC.	1986 YIELD BU/A TBZR	BU/A NWT	NO. LOC.
KS	53.3	49.9	30	52.0	43.9	3	51.7	54.4	3	59.4	54.1	5	47.5	45.3	14	65.7	59.9	5
OK	45.1	36.6	12	37.8	27.7	2	-	-	-	67.8	57.7	2	46.0	40.3	5	33.3	22.6	3
TX	68.5	62.0	3	-	-	-	-	-	-	-	-	-	78.5	73.5	2	48.8	39.2	1
NE	52.3	47.6	12	-	-	-	56.2	47.8	3	-	-	-	49.7	47.6	6	53.7	47.5	3
CO	76.9	79.6	10	87.6	90.5	1	69.0	71.2	2	96.6	98.6	1	79.7	82.9	4	64.3	66.5	2

YIELD OVER LOCATION/YEARS
55.9 52.1 67

TEST WT. OVER LOCATION/YEARS
58.2 57.1 67

THIS DATA REPRESENTS ALL DATA AVAILABLE IN HRWW REGION FROM ALL PUBLIC AND PRIVATE TRIALS DATING BACK TO 1982, IN WHICH TRAILBLAZER AND THE OTHER VARIETY (ARKAN, BRULE OR NEWTON) WERE TESTED IN THE SAME TRIAL. THESE TRIALS INCLUDE IRRIGATION, CONTINUOUS AND SUMMER FALLOW.